AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (CURRENTLY AMENDED)   An image feature amount acquisition apparatus for acquiring a feature amount of an image by subjecting image data of the image expressed in pixels in a dot matrix form to statistical calculation processing, the apparatus comprising:

a thumbnail presence/absence judging unit which judges whether said image data have thumbnail data in addition to an original image data;

a precision selecting unit which selects a level of precision required for said feature amount;

a statistical calculation selecting unit which selects either a thumbnail statistical calculation unit or a sampling and statistical calculation unit by using the result of selection by said precision selecting unit and the result of judgment by said thumbnail presence/absence judging unit, wherein

saida thumbnail statistical calculation unit which acquires thumbnail data from said image data and performs statistical calculation for the thumbnail data; and

a said sampling and statistical calculation unit which samples said original image data and performs statistical calculation for the sampled data; and

a precision selecting unit which selects a level of precision required for said feature amount;

~~a statistical calculation selecting unit which selects either said thumbnail statistical calculation unit or said sampling and statistical calculation unit by using the result of selection by said precision selecting unit and the result of judgment by said thumbnail presence/absence judging unit; and~~

a feature amount acquisition unit which acquires a feature amount characterizing said original image data by using the ~~obtained~~ selected statistical calculation result obtained from one of said thumbnail statistical calculation unit and said sampling and statistical calculation unit.

2. (ORIGINAL) An image feature amount acquisition apparatus, as claimed in claim 1, wherein said statistical calculation selecting unit selects said thumbnail statistical calculation unit when there are said thumbnail data and the level of precision required for said feature amount is not so high and selects said sampling and statistical calculation unit in other cases.

3. (ORIGINAL) An image feature amount acquisition apparatus, as claimed in claim 1, wherein the precision level of said feature amount matches an image quality required in image correction processing.

4. (ORIGINAL) An image feature amount acquisition apparatus, as claimed in claim 1, wherein said thumbnail data are recorded in a compressed form, and said thumbnail statistical calculation unit develops with respect to compressed thumbnail data pixels equivalent to a

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prescribed number of lines, performs statistical calculation for the developed image data and

repeats this sequence until it is finished for all the lines.

5. (ORIGINAL) An image feature amount acquisition apparatus, as claimed in claim 4,

wherein said thumbnail statistical calculation unit secures a buffer in which at least two units of

bit map images each in the smallest developable unit can be recorded, develops the bit map

images in succession and performs statistical calculation for the developed bit map images.

6. (ORIGINAL) An image feature amount acquisition apparatus, as claimed in claim 4,

wherein said thumbnail statistical calculation unit acquires an image size in advance, and starts

statistical calculation after computing and securing a required buffer capacity.

7. (CURRENTLY AMENDED) An image feature amount acquisition method for acquiring a

feature amount of an image by subjecting image data of the image expressed in pixels in a dot

matrix form to statistical calculation processing, the method comprising:

a thumbnail presence/absence judging step of judging whether said image data have

thumbnail data in addition to an original image data;

a precision selecting step of selecting a level of precision required for said feature

amount;

a statistical calculation selecting step of selecting either a thumbnail statistical calculation

step or a sampling and statistical calculation step by using the result of selection at said precision

selecting step and the result of judgment at said thumbnail presence/absence judging step; wherein

a said thumbnail statistical calculation step ~~of acquiring~~ acquires thumbnail data from said image data and performing statistical calculation for the thumbnail data; and

a said sampling and statistical calculation step ~~of sampling~~ samples said original image data and performing statistical calculation for the sampled data; and

~~a precision selecting step of selecting a level of precision required for said feature amount;~~

~~a statistical calculation selecting step of selecting either said thumbnail statistical calculation step or said sampling and statistical calculation step by using the result of selection at said precision selecting step and the result of judgment at said thumbnail presence/absence judging step; and~~

a feature amount acquisition step of acquiring a feature amount characterizing said original image data by using the ~~obtained~~ selected statistical calculation result obtained from one of said thumbnail statistical calculation step and said sampling and statistical calculation step.

8. (ORIGINAL) An image feature amount acquisition method, as claimed in claim 7, wherein at said statistical calculation selecting step said thumbnail statistical calculation step is selected when there are said thumbnail data and the level of precision required for said feature amount is not so high and said sampling and statistical calculation step is selected in other cases.

9. (ORIGINAL) An image feature amount acquisition method, as claimed in claim 7, wherein the precision level of said feature amount matches an image quality required in image correction processing.

10. (ORIGINAL) An image feature amount acquisition method, as claimed in claim 7, wherein said thumbnail data are recorded in a compressed form, and at said thumbnail statistical calculation step pixels equivalent to a prescribed number of lines are developed with respect to compressed thumbnail data, statistical calculation is performed for the developed image data, and this sequence is repeated until it is finished for all the lines.

11. (ORIGINAL) An image feature amount acquisition method, as claimed in claim 10, wherein at said thumbnail statistical calculation step a buffer in which at least two units of bit map images each in the smallest developable unit can be recorded is secured, and the bit map images are developed in succession and statistical calculation is performed for the developed bit map images.

12. (ORIGINAL) An image feature amount acquisition method, as claimed in claim 10, wherein at said thumbnail statistical calculation step an image size is acquired in advance, and statistical calculation is initiated after a required buffer capacity is computed and secured.

13. (CURRENTLY AMENDED)   A medium recording thereon an image feature amount

acquisition program for causing a computer to acquire a feature amount of an image by

subjecting image data of the image expressed in pixels in a dot matrix form to statistical

calculation processing, said program enabling a computer to realize:

a thumbnail presence/absence judging function of judging whether said image data have

thumbnail data in addition to an original image data;

a precision selecting function of selecting the level of precision required for said feature

amount;

a statistical calculation selecting function of selecting and implementing either a

thumbnail statistical calculation function or a sampling and statistical calculation function by

using the result of selection by said precision selecting function and the result of judgment by

said thumbnail presence/absence judging function; wherein

a said thumbnail statistical calculation function of acquiring acquires thumbnail

data from said image data and performing statistical calculation for the thumbnail data;

and

a said sampling and statistical calculation function of sampling samples said

original image data and performing statistical calculation for the sampled data; and

a precision selecting function of selecting the level of precision required for said feature

amount;

a statistical calculation selecting function of selecting and implementing either said

thumbnail statistical calculation function or said sampling and statistical calculation function by

~~using the result of selection by said precision selecting function and the result of judgment by~~

~~said thumbnail presence/absence judging function; and~~

a feature amount acquisition function of acquiring a feature amount characterizing said

original image data by using the ~~obtained~~ selected statistical calculation result obtained from one

of said thumbnail statistical calculation function and said sampling and statistical calculation

function.

14. (ORIGINAL) A medium recording thereon an image feature amount acquisition

program, as claimed in claim 13, wherein said statistical calculation selecting function selects

said thumbnail statistical calculation unit when there are said thumbnail data and the level of

precision required for said feature amount is not so high and selects said sampling and statistical

calculation function in other cases.

15. (ORIGINAL) A medium recording thereon an image feature amount acquisition

program, as claimed in claim 13, wherein the precision level of said feature amount matches the

image quality required in image correction processing.

16. (ORIGINAL) A medium recording thereon an image feature amount acquisition

program, as claimed in claim 13, wherein said thumbnail data are recorded in a compressed

form, and said thumbnail statistical calculation function develops with respect to compressed

thumbnail data pixels equivalent to a prescribed number of lines, performs statistical calculation

for the developed image data and repeats this sequence until it is finished for all the lines.

17. (ORIGINAL) A medium recording thereon an image feature amount quantity

acquisition program, as claimed in claim 16, wherein said thumbnail statistical calculation

function secures a buffer in which at least two units of bit map images each in the smallest

developable unit can be recorded, develops the bit map images in succession and performs

statistical calculation for the developed bit map images.

18. (ORIGINAL) A medium recording thereon an image feature amount acquisition

program, as claimed in claim 16, wherein said thumbnail statistical calculation function acquires

an image size in advance, and starts statistical calculation after computing and securing a

required buffer capacity.

19. (CURRENTLY AMENDED) An image correcting apparatus for acquiring a feature

amount of an image by subjecting image data of the image expressed in pixels in a dot matrix

form to statistical calculation processing, determining correcting parameters by using the feature

amount, and correcting the image, the apparatus comprising:

a thumbnail presence/absence judging unit which judges whether said image data have

thumbnail data in addition to an original image data;

a selecting unit which selects a level of precision required for said feature amount;

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a statistical calculation selecting unit which selects either a thumbnail statistical calculation unit or a sampling and statistical calculation unit by using the result of selection by said precision selecting unit and the result of judgment by said thumbnail presence/absence judging unit; wherein

a-said thumbnail statistical calculation unit which acquires thumbnail data from said image data and performs statistical calculation for the thumbnail data; and

a-said sampling and statistical calculation unit which samples said original image data and performs statistical calculation for the sampled data;

a selecting unit which selects a level of precision required for said feature amount;

a statistical calculation selecting unit which selects either said thumbnail statistical calculation unit or said sampling and statistical calculation unit by using the result of selection by said precision selecting unit and the result of judgment by said thumbnail presence/absence judging unit;

a feature amount acquisition unit which acquires a feature amount characterizing said original image data by using the obtained selected statistical calculation result obtained from one of said thumbnail statistical calculation unit and said sampling and statistical calculation unit;

a parameter computing unit which computes correcting parameters by using said feature amount; and

an image correcting unit which subjects said original image data to image correction processing by using the computed correcting parameters.

20. (CURRENTLY AMENDED)   An image correcting method for acquiring a feature amount

of an image by subjecting image data of the image expressed in pixels in a dot matrix form to

statistical calculation processing, determining correcting parameters by using the feature amount,

and correcting the image, the method comprising:

a thumbnail presence/absence judging step of judging whether said image data have

thumbnail data in addition to an original image data;

a selecting step of selecting the level of precision required for said feature amount;

a statistical calculation selecting step of selecting either a thumbnail statistical calculation

step or a sampling and statistical calculation step by using the result of selection at said precision

selecting step and the result of judgment at said thumbnail presence/absence judging step;

wherein

a said thumbnail statistical calculation step of acquiring acquires thumbnail data

from said image data and performing statistical calculation for the thumbnail data; and

a said sampling and statistical calculation step of sampling samples said original

image data and performing statistical calculation for the sampled data;

a selecting step of selecting the level of precision required for said feature amount;

a statistical calculation selecting step of selecting either said thumbnail statistical

calculation step or said sampling and statistical calculation step by using the result of selection at

said precision selecting step and the result of judgment at said thumbnail presence/absence

judging step;

a feature amount acquisition step of acquiring a feature amount characterizing said

original image data by using the ~~obtained~~ selected statistical calculation result obtained from one

of said thumbnail statistical calculation step and said sampling and statistical calculation step;

a parameter computing step of computing correcting parameters by using said feature

amount; and

an image correcting step of subjecting said original image data to image correction

processing by using the computed correcting parameters.

21. (CURRENTLY AMENDED)   A medium recording thereon an image correcting program

for causing a computer to acquire a feature amount of an image by subjecting image data of the

image expressed in pixels in a dot matrix form to statistical calculation processing, to determine

correcting parameters by using the feature amount, and to correct the image, said program

enabling a computer to realize:

a thumbnail presence/absence judging function of judging whether said image data have

thumbnail data in addition to an original image data;

a selecting function of selecting a level of precision required for said feature amount;

a statistical calculation selecting function of selecting either a thumbnail statistical

calculation function or a sampling and statistical calculation function by using the result of

selection by said precision selecting function and the result of judgment by said thumbnail

presence/absence judging function; wherein

a said thumbnail statistical calculation function of acquiring acquires thumbnail

data from said image data and performing statistical calculation for the thumbnail data;

and

a said sampling and statistical calculation function of sampling samples said

original image data and performing statistical calculation for the sampled data;

a selecting function of selecting a level of precision required for said feature amount;

a statistical calculation selecting function of selecting either said thumbnail statistical

calculation function or said sampling and statistical calculation function by using the result of

selection by said precision selecting function and the result of judgment by said thumbnail

presence/absence judging function;

a feature amount acquisition function of acquiring a feature amount characterizing said

original image data by using the obtained selected statistical calculation result obtained from one

of said thumbnail statistical calculation function and said sampling and statistical calculation

function;

a parameter computing function of computing correcting parameters by using said feature

amount; and

an image correcting function of subjecting said original image data to image correction

processing by using the computed correcting parameters.

22. (CURRENTLY AMENDED)   A printer which acquires a feature amount of an image by

subjecting image data of the image expressed in pixels in a dot matrix form to statistical

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calculation processing, determines correcting parameters by using the feature amount, and

corrects and prints the image, the printer comprising:

an image data selecting unit which selects image data from a memory card recording

thereon the image data including an original image data in a compressed form;

an image quality selecting unit which selects a quality level of image processing;

an image data reading unit which read said selected image data out of said memory card;

a thumbnail presence/absence judging unit which judges whether said image data have

thumbnail data in addition to the original image data;

a statistical calculation selecting unit which selects either a thumbnail statistical

calculation unit or a sampling and statistical calculation unit by using the result of judgment by

said thumbnail presence/absence judging unit and the result of selection by said image quality

selecting unit; wherein

~~a~~ said thumbnail statistical calculation unit ~~which~~ acquires thumbnail data from

said image data and performs statistical calculation for the thumbnail data; and

~~a~~ said sampling and statistical calculation unit ~~which~~ samples said original image

data and performs statistical calculation for the sampled data;

~~a statistical calculation selecting unit which selects either said thumbnail statistical~~

~~calculation unit or said sampling and statistical calculation unit by using the result of judgment~~

~~by said thumbnail presence/absence judging unit and the result of selection by said image quality~~

~~selecting unit;~~

a feature amount acquisition unit which acquires a feature amount characterizing said

original image data by using the ~~obtained~~ selected statistical calculation result obtained from one

of said thumbnail statistical calculation unit and said sampling and statistical calculation unit;

a parameter computing unit which computes correcting parameters by using said feature

amount;

an image correcting unit which subjects said original image data to image correction

processing while restoring them by using the computed correcting parameters; and

a printing unit which executes printing on the basis of the original image data having

undergone image correction.

23. (CURRENTLY AMENDED)   A printing method for acquiring a feature amount of an

image by subjecting image data of the image expressed in pixels in a dot matrix form to

statistical calculation processing, determining correcting parameters by using the feature amount,

and correcting and printing the image, the method comprising the steps of:

selecting image data from a memory card recording thereon the image data including an

original image data in a compressed form and further selecting the quality of image processing;

reading said selected image data out of said memory card and thereafter, judging whether

said image data have thumbnail data in addition to the original image data;

selecting either statistical calculation by acquiring thumbnail data from said image data or

statistical calculation by sampling said original image data, on the basis of the result of the

judgment on the presence or absence of thumbnail data and said selected quality;

acquiring a feature amount characterizing said original image data by using whichever statistical calculation result is ~~obtained~~selected from either said statistical calculation by acquiring thumbnail data from said image data or said statistical calculation by sampling said original image data;

computing correcting parameters by using the feature amount;

subjecting said original image data to image correction processing by using the computed correcting parameters; and

executing printing on the basis of the original image data having undergone image correction.

24. (CURRENTLY AMENDED)   A medium recording thereon an image correcting program for causing a computer to acquire a feature amount of an image by subjecting image data of the image expressed in pixels in a dot matrix form to statistical calculation processing, to determine correcting parameters by using the feature amount, and to correct and print the image, the program being characterized in that the program enables the computer to realize:

an image data selecting function of selecting image data from a memory card recording thereon image data including an original image data in a compressed form;

an image quality selecting function of selecting a quality level of image processing;

an image data reading function of reading said selected image data out of said memory card;

a thumbnail presence/absence judging function of judging whether said image data have thumbnail data in addition to the original image data;

a statistical calculation selecting function for selecting either a thumbnail statistical calculation function or a sampling and statistical calculation function by using the result of judgment by said thumbnail presence/absence judging function and the result of selection by said image quality selecting function; wherein

~~a~~ said thumbnail statistical calculation function ~~of acquiring~~ acquires thumbnail data from said image data and performing statistical calculation for the thumbnail data;

~~a~~ said sampling and statistical calculation function ~~of sampling~~ samples said original image data and performing statistical calculation for the sampled data;

~~a statistical calculation selecting function for selecting either said thumbnail statistical calculation function or said sampling and statistical calculation function by using the result of judgment by said thumbnail presence/absence judging function and the result of selection by said image quality selecting function;~~

a feature amount acquisition function of acquiring a feature amount characterizing said original image data by using the ~~obtained~~ selected statistical calculation result obtained from one of said thumbnail statistical calculation function and said sampling and statistical calculation function;

a parameter computing function of computing correcting parameters by using said feature amount;

an image correcting function of subjecting said original image data to image correction

processing while restoring them by using the computed correcting parameters; and

a printing function of generating and supplying print data on the basis of the original

image data having undergone image correction.